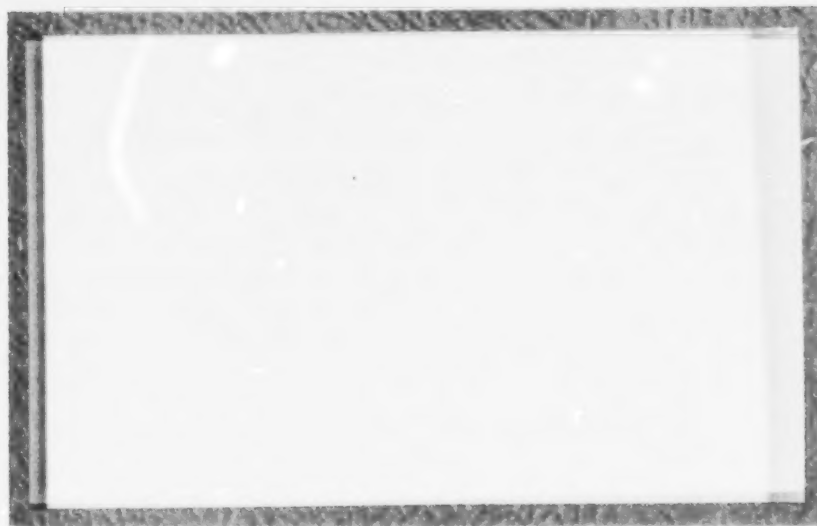


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**SRTT: Series Related to
Transportation in Toronto**

by

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ABSTRACT

This documented data bank contains monthly time series data pertaining to the explanation of the transit demand or gasoline consumption for the Toronto Metropolitan area. Most variables of interest start in January 1956.

Keywords: monthly time series , transit demand , Toronto.

RESUME

Nous présentons ici des séries chronologiques mensuelles construites pour expliquer la demande totale de transport en commun et d'essence pour la région métropolitaine de Toronto. La plupart des séries commencent en janvier 1956.

Mots clés: séries chronologiques mensuelles , demande de transport en commun , Toronto.

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CALENDAR

	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
January	1	13	25	37	49	61	73	85	97	109	121	133	145
February	2	14	26	38	50	62	74	86	98	110	122	134	146
March	3	15	27	39	51	63	75	87	99	111	123	135	147
April	4	16	28	40	52	64	76	88	100	112	124	136	148
May	5	17	29	41	53	65	77	89	101	113	125	137	149
June	6	18	30	42	54	66	78	90	102	114	126	138	150
July	7	19	31	43	55	67	79	91	103	115	127	139	151
August	8	20	32	44	56	68	80	92	104	116	128	140	152
September	9	21	33	45	57	69	81	93	105	117	129	141	153
October	10	22	34	46	58	70	82	94	106	118	130	142	154
November	11	23	35	47	59	71	83	95	107	119	131	143	155
December	12	24	36	48	60	72	84	96	108	120	132	144	156
	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
January	157	169	181	193	205	217	229	241	253	265	277	289	301
February	158	170	182	194	206	218	230	242	254	266	278	290	302
March	159	171	183	195	207	219	231	243	255	267	279	291	303
April	160	172	184	196	208	220	232	244	256	268	280	292	304
May	161	173	185	197	209	221	233	245	257	269	281	293	305
June	162	174	186	198	210	222	234	246	258	270	282	294	306
July	163	175	187	199	211	223	235	247	259	271	283	295	307
August	164	176	188	200	212	224	236	248	260	272	284	296	308
September	165	177	189	201	213	225	237	249	261	273	285	297	309
October	166	178	190	202	214	226	238	250	262	274	286	298	310
November	167	179	191	203	215	227	239	251	263	275	287	299	311
December	168	180	192	204	216	228	240	252	264	276	288	300	312
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
January	313	325	337	349	361	373	385	397	409	421	433	445	457
February	314	326	338	350	362	374	386	398	410	422	434	446	458
March	315	327	339	351	363	375	387	399	411	423	435	447	459
April	316	328	340	352	364	376	388	400	412	424	436	448	460
May	317	329	341	353	365	377	389	401	413	425	437	449	461
June	318	330	342	354	366	378	390	402	414	426	438	450	462
July	319	331	343	355	367	379	391	403	415	427	439	451	463
August	320	332	344	356	368	380	392	404	416	428	440	452	464
September	321	333	345	357	369	381	393	405	417	429	441	453	465
October	322	334	346	358	370	382	394	406	418	430	442	454	466
November	323	335	347	359	371	383	395	407	419	431	443	455	467
December	324	336	348	360	372	384	396	408	420	432	444	456	468

LIST OF VARIABLES BY GROUP

A) Dependent variables 14

ADD	adults derived as a residual
ADP	adults & passes
ADR	average day ridership
ADU	adults
APD	adults per day
APS	adults, pass & seniors
CHI	children
CHS	children & scholars
JCC	non-child
JCD	adults derived
JCE	adults adjusted
MPS	metropass sales
PRD	estimate of pass ridership
RPC	riders per capita
RVM	non-pass revenue passengers
RVP	revenue passengers
SCH	scholars
SEN	seniors
TPA	revenue passengers adjusted for presumed double counting
TZA	two zone riders adjusted
ZNP	deseasonalized ridership per equivalent day
ZRV	revenue passengers adjusted for zone

B) Accounting variables 17

AZR	adult zonal ratio during multiple counting period
AZ1	adult zonal ratio during 6-zone period
AZ2	adult zonal ratio during 2-zone period
CMB	combination tickets
JCF	zone ratio
PAS	dummy variable to account for impact of pass program
ZRB	dummy variable for 6-zone period
ZRD	dummy variable for 2-zone period
ZNO	sale of zone 1 tickets
ZNT	sale of zone 2 tickets
ZRT	zone 2/1 ratio

C) Fare dummies 20

EFA exact fare adjustment
EFC exact fare dummy variable
SCD scholars' fare extension dummy: since March 1973
SN1 first year of (limited) fare privilege: 1970
SN2 following years of (extended) senior
fare privilege: since 1971

D) Fare variables transit 21

Nominal fare elements

ADF adult fare
CHF child fare
PRF metropass fare
SCF scholar fare
SEF senior fare
TZF two-zone fare (adults)

Combined nominal fares

APF adults & pass
ASF adults, seniors & pass
CLF children & scholars
FAR average fare
KMF combined fare
NPF non pass fare

Real nominal fares

RAF real adult fare
RCF real child fare
REF real elderly fare
RPF real pass fare
RSF real scholar fare

Real combined fares

RJF	real joint adult-pass-senior fare
RKF	real combined fare
RMF	real non-pass fare
RYF	real youth fare
ZFR	real average fare

E) Other price variables 23

CPI	consumer price index
GAS	gasoline price in Toronto
GFR	gas to fare ratio
PTT	price of private travel in Toronto
RGS	real gas price
RPT	real price of private transportation

F) Motor vehicles 24

CAR	number of cars in Greater Toronto area
FAC	auto factor
VHR	vehicle registration
VPC	vehicle registration per capita
VRM	vehicle registration Metro

G) Income 26

AWW	average nominal weekly wages
FWW	weekly wages
RWW	real weekly wages

H) Service variables 27

ASS	average subway speed
ATD	average trip distance
BTT	basic travel time
CPL	complaints (Since Jan. '71)
FBM	surface miles per equivalent day
FTM	subway car miles per equivalent day
HWB	surface headway
HWD	hours worked drivers
HWS	subway headway 2
HWT	headway total
SFH	surface hours
SFM	surface unit miles
SMR	subway miles of route
SMS	square miles served
SPD	speed
SRM	surface miles of route
SSA	surface speed average
STM	subway train miles
SWH	subway hours
SWM	subway car miles
TLH	total hours
TLM	total vehicle miles
TMI	surface and train miles
TMR	total miles of route
TWT	total headway
WTT	wait time
WBT	wait and basic time
ZMC	miles per complaint

I) Weather 30

CSF cumulated snowfall
RNF rainfall
SNF snow fall
TMP temperature difference

J) Activities 31

AUA attendance at university
CCA community college attendance
DOS days off school
DUC dwelling units completed
EMP employment index
ESE elementary school attendance
EXA Canadian National Exhibition attendance
FIR subway fires
MPT Metro population
MTP Metropolitan population
MTR city population
RRT real retail trade
SAA school attendance adults
SDA school days attendance
SPA school presence adults
SPE school presence elementary schools
SPH school presence secondary schools
SPS school presence scholars (elementary & secondary)
SPT school presence total
SSE secondary school attendance adjusted
STE school total attendance
STK TTC strike days
VRT value of retail trade
WPA work presence days
WPB work presence ratio
WPR work presence index
ZRA retail trade adjusted
ZTR real retail trade

K) Aggregation 34

EDS	equivalent days corrected for strikes
EQD	equivalent days
HOL	Holidays in month
SAT	Saturdays in month
SHP	shopping days (since Jan. '71)
SNH	Sundays and Holidays
SUN	Sundays in month
TD	total days in month
TDO	total days of operation
VDW	vacation days workers
WKD	weekend days in month
WKO	off days (weekends & holidays)
WRK	work days in month

L) Seasonal variables & constants 35

JAN	January
FEB	February
MAR	March
APR	April
MAY	May
JUN	June
JUL	July
AUG	August
SEP	September
OCT	October
NOV	November
DEC	December
SFR	seasonality factor
STC	Santa Claus
C	constant equal to 100
CST	constant equal to 1
JNL	constant equal to 0

M) Advertising variables 36

ACR	accumulated advertising reach
NCM	newspaper cost thousands
NSP	marketing newspaper
NSR	newspaper reach
RAD	marketing radio
RCM	radio cost thousands
RDR	radio reach
TCM	television per thousand
TEL	marketing television
TVR	television reach
ZRC	radio and television reach
ZRE	advertising reach

PROCEDURES

A. Dependent variables

i) aggregate measures:

RVP: revenue passengers

At present, the revenue passenger figure RVP is obtained by adding:

- token
- ticket
- cash/ mean fare
(with weights derived from sample of cash users)
- pass passengers, since May. '80
- double counting when there were 6 fare zones
(until Feb 1, 1962)
and when there were only 2 (until Jan. 22, 1973)
- Sunday and Holiday passes (less than 0.5%)

RVM: non-pass revenue passengers

$$RVM = RVP - PRD$$

TPA: revenue passengers net of combination of ticket sales

$$TPA = RVP - CMB$$

TZA: two zone riders adjusted

RPC: riders per capita

$$RPC = ZRV / MPT$$

Where: ZRV = revenue passengers adjusted for zone

$$ZRV = RVP \times TZA$$

ZNP: deseasonalized ridership per equivalent day

$$ZNP = ADR / SFR$$

Where: ADR = average day ridership
SFR = seasonality factor

MPS: metropass sales (0 until May 1980)

ii) first group of subcategories:

ADU	adults
CHI	children
SCH	scholars
SEN	seniors
PRD	pass riders (the rules for obtaining this estimate changed in Jan. '81)

Procedures for the first group of subcategories

March. '73 to date

ADU	RVP.share of adult ticket sales and number of adult cash riders
CHI	RVP.share of total ridership obtained from ticket sales and cash riders
SCH	same share of total ridership obtained from ticket sales and cash riders
SEN	same share of total ridership obtained from ticket sales and cash riders
PRD	pass ridership measured from sample

Nov. '66 - Feb. '73

ADU	monthly net ticket sales † + cash adults from passenger total and implicit cash fare
CHI	monthly net ticket sales + cash children from passenger total and implicit cash fare
SCH	monthly net ticket sales (no cash scholars-no cash fare)
SEN	monthly net ticket sales (no cash seniors-no cash fare)

Jan. '59-Oct. '66

ADU	total yearly estimate of adult ticket sales is distributed on a monthly basis according to the pattern of RVP; cash adults are obtained as for following period Nov. '66-Feb. '73.
CHI	total yearly estimate of sales is distributed according to the pattern of a representative year (1977); cash as for Nov. '66-Feb. '73.
SCH	total yearly sales distributed according to average pattern 1967-72.

Jan. '56 - Dec. '58

The yearly total ridership was split among three categories by using the 1959 proportion of each for that year.

ADU	adults
CHI	yearly total distributed as in 1977
SCH	yearly total distributed according to average pattern 1967-72

† until Jan. 15, 1970, comprises seniors; also comprises token sales, Sunday and Holiday pass and Miscellaneous.

iii) second group of subcategories:

ADD adults derived as a residual
ADP adults & pass
APS adults, pass & seniors

Procedures for the other subcategories

ADD adult ridership derived as a residual

$ADD = RVP - CHI - SEN - SCH - PRD$
We note that ADD is not identical to ADU.

ADP adults & pass

$ADP = ADD + PRD$

APS adults, pass and seniors

$APS = ADD + PRD + SEN$

CHS children and scholars

$CHS = CHI + SCH$

iv) other measures:

ADR average day ridership

$ADR = RVP / EQD$

APD adults per day

$APD = ADU / TD$

JCC non-child

$JCC = RVP - CHI$

JCD adults derived

$JCD = JNL + ADU$ (Note that $JNL = 0$)

JCE adults adjusted

$JCE = JCD - CMB$

B. Accounting variables

Zonal multiple counting variables

AZR	adult outside zone ratio
AZ1	adult outside zone ratio for 6-zone period
AZ2	adult outside zone ratio for 2-zone period
CMB	combination ticket sales
JCF	zone ratio
PAS	dummy variable to account for impact of pass program
ZNO	sales of zone 1 tickets
ZNT	sales of zone 2 tickets
ZRB	dummy variable for 6-zone period
ZRD	dummy variable for 2-zone period
ZRT	zone ratio

Problem: Measured ridership RVP includes a variable amount of multiple counting

- i) of passengers using more than one zone (out of 6) until Jan. 31, 1962, when zones 3, 4, 5, 6 were collapsed into zone 2 for metro trips (other trips became " outside zone " , i.e. non-metro, further reducing measured ridership);
- ii) of passengers of zone 1 and 2 until Jan. 22, 1973 when zone 2 disappeared, leaving only zone 1.

Procedures

AZR adult zonal ratio:

Assume only adults were double counted. We build a variable based on combination ticket sales , CMB.

-Jan. '60 - Oct. '66: the yearly total sale number is spread using the average monthly distribution of '69 - '72.

-Since Nov. '66: actual sales (making sure that entries are homogeneous for the period during which combination ticket sales were counted as two tickets instead of one).

$$CMB = \begin{cases} \text{since Nov. '66: actual sales by month} \\ \text{before Nov. '66: yearly total spread according to} \\ \text{average '69-'72 distribution.} \end{cases}$$

$$AZR = \begin{cases} \frac{CMB}{ADD - CMB} & \text{obs 49-present} \\ AZR \text{ of 1960} & \text{obs 1-48} \end{cases}$$

AZ1 and AZ2: adult zone ratio by period.

$$AZ1 = \begin{cases} AZR & \text{obs. 1-73} \\ 0 & \text{otherwise} \end{cases}$$

$$AZ2 = \begin{cases} AZR & \text{obs. 74-205} \\ 0 & \text{otherwise} \end{cases}$$

ZRB and ZRD: multiple zone dummy variables.

$$ZRB = \begin{cases} 1 & \text{obs. 1-73} \\ 0 & \text{otherwise} \end{cases}$$

$$ZRD = \begin{cases} 1 & \text{obs. 74-204} \\ 0.71 & 205 \\ 0 & \text{otherwise} \end{cases}$$

PAS: dummy to account for impact of pass program

The measured total ridership RVP includes a component, PRD, which is estimated from pass diaries (80 households in sample); this estimate has an error. Used with RVP, the variable PAS will represent the error used into building the pass component into the fare index, any systematic error or heterogeneity of PRD and any net impact of socializing due to pass holders. Used with RVM, it represents the drop in traditional ridership due to the pass program.

$$PAS = \begin{cases} 0 & \text{until April 30, 1980} \\ 1 & \text{afterwards} \end{cases}$$

JCF zone ratio = CMB / JCE

ZRT zone 2/1 ratio = ZNT / ZNO

Where: ZNO = sale of zone 1 tickets

ZNT = sale of zone 2 tickets

C. Fare dummy variables

EFA exact fare adjustment
EFC exact fare dummy (used to take account the impact of exact fare and possible accounting change)

SN1 limited senior fare privilege in 1970
SN2 limited senior fare privilege since 1971
SCD scholars' fare extension dummy
(outside of school hours since March 16, '73)

Procedures

EFA and EFC : exact fare adjustments

EFA: exact fare adjustment , 0 until October 1975.
(Sources and procedures unknown)

$$EFC = \begin{cases} 0 & \text{obs. 1-236} \\ 0.5 & 237 \\ 1 & 238- \end{cases}$$

SN1 , SN2 and SCD : extensions of fare privileges

$$SN1 = \begin{cases} 0 & \text{obs. 1-168} \\ 1 & 169-180 \\ 0 & 181- \end{cases}$$

$$SN2 = \begin{cases} 0 & \text{obs. 1-180} \\ 1 & 181- \end{cases}$$

$$SCD = \begin{cases} 0 & \text{obs. 1-206} \\ 0.5 & 207 \\ 1 & 208- \end{cases}$$

D. Fare variables transit

Fare elements (nominal)

Adults	ADF	= $\frac{(\text{cash fare zone 1}) + (\text{ticket and token fare, zone 1}) 0.46}{0.66}$ + $\frac{(\text{non zone 1 fare})^1 0.08}{0.66}$
Children	CHF	= $\frac{(\text{cash fare zone 1}) 0.015 + (\text{ticket fare}) 0.025}{0.04}$
Scholars	SCF	= $\frac{(\text{cash fare zone 1}) 0.04 + (\text{ticket fare})^2 0.09}{0.13}$
Seniors	SEF	= $\frac{(\text{ticket fare})^3 0.07}{0.07}$
Pass	PRF	= $\frac{(\text{pass ticket fare})^4 0.10}{0.10}$
Two-zone fare	TZF	= fare for 2-zone trips (adults)

Combined nominal fares

Children & scholars	CLF	= (CHF) 0.24 + (SCF) 0.76
Adults & passes	APF	= (ADF) 0.87 + (PRF) 0.13
Adults seniors & passes	ASF	= (APF) 0.92 + (SEF) 0.08
Non pass fare	NPF	= $\frac{KMF - (PRF)0.1}{0.9}$
Combined fare	KMF	= (ADF) 0.66 + (SCF) 0.13 + (SEF) 0.07 + (PRF) 0.1 + (CHF) 0.04
Average fare	FAR	= TTC average fare smoothed to reduce monthly variations (excludes two-zone fare)

¹ Combination fare

² Before March 18, 1973, same as adults.

³ Before Jan. 15, 1970, same as adults.

⁴ Before May, 1980, same as adults.

Real nominal fares

Adults $RAF = \frac{ADF}{CPI} \times 100$

Children $RCF = \frac{CHF}{CPI} \times 100$

Scholars $RSF = \frac{SCF}{CPI} \times 100$

Elderly $REF = \frac{SEF}{CPI} \times 100$

Pass $RPF = \frac{PRF}{CPI} \times 100$

Real combined fares

Real combined fare $RKF = \frac{KMF}{CPI} \times 100$

Real joint adult fare $RJF = \frac{ASF}{CPI} \times 100$

Real non-pass fare $RMF = \frac{NPF}{CPI} \times 100$

Real youth fare $RYF = \frac{CLF}{CPI} \times 100$

Real average fare $ZFR = FAR / CPI$

E. Other price variables

CPI consumer price index for Toronto
GFR gas to fare ratio
RPT index of real price of private travel in Toronto
RGS index of real price of gasoline in Toronto
 as supplied by Statistic Canada

Procedures

CPI prior to 1971, it is divided by 1.294 to be made consistent
 with 1971 = 100, using pre-revised weightings

$$\text{GFR} = \frac{\text{GAS}}{\text{ADF}}$$

ADF = adult fare

$$\text{RPT} = \frac{\text{PTT}}{\text{CPI}} \times 100 \quad (\text{exist only since Jan. '71})$$

PTT = price of private travel in Toronto

$$\text{RGS} = \frac{\text{GAS}}{\text{CPI}} \times 100$$

GAS = nominal price of gas in Toronto

F. Motor vehicles

CAR number of cars in the Greater Toronto area
FAC auto factor
VRM vehicle registration in Metro Toronto
VPC vehicle registration per capita
VHR vehicle registration
 Vehicle registration for York County includes
 both passenger and commercial vehicles.

Procedures

FAC: auto factor

$$FAC = \begin{cases} 0 & \text{obs. 1-180} \\ 1 & \text{181-} \end{cases}$$

VPC: vehicle registration per capita

$$VPC = VHR / MPT$$

Where: VHR = vehicle registration

VRM: vehicle registration Metro

The December number of registered vehicles (obtained from Metro Planning) is taken as benchmark. To obtain monthly fluctuations, total sales of new cars (domestic and foreign) for Ontario define a distribution which allows the change in benchmarks to be assigned among months; when there is a drop between benchmarks, the monthly value drops least when sales of new cars are highest.

CAR: Number of cars in the Greater Toronto area

CAR	1-132	VRM The benchmarks for this period (until Dec. 1966) came from passenger car registration for Greater Toronto (Sta. Can. 53-219) obtained from Metro Planning.
133 - 204		Absolute percentage changes in VRM are used to interpolate between benchmarks. The benchmarks are: Dec. '67: 650, 343, an approximation to account for a change in the definition of Greater Toronto to Toronto which causes a drop in VRM. Dec. '68: 705, 178, obtained from Stat. Can. 53-219 and Metro Planning. Dec. '69: 742, 409, obtained from Stat. Can. 53-219 and Metro Planning. Dec. '70: 749, 988, sum of Toronto, Aurora, Markham, Newmarket and Mississauga in Stat. Can. 53-219. Dec. '71: 786, 688, sum of Toronto, Aurora, Markham, Newmarket and Mississauga in Stat. Can. 53-219. Dec. '72: 803, 738, sum of Toronto, Aurora, Markham, Newmarket and Mississauga in Stat. Can. 53-219. Dec. '73: 883, 631† sum of Toronto, Aurora, Markham, Newmarket and Mississauga in Stat. Can. 53-219.
205-end		VRM + 91,874

† Note that in Dec. '73 this actual number differs slightly from that obtained by summing the four areas using Stat. Can. 53-219 (1973 is the last year available in this series). Source: Stat. Can. 53-219, Metro Planning.

G. Income

AWW average nominal weekly wages

RWW real weekly wages

Procedures

$$RWW = FWW \times 100$$

Where:

$$FWW, \text{ weekly wages} = \frac{AWW}{CPI}$$

AWW, average nominal weekly wages for Toronto, is obtained from Statistics Canada.

H. Service variables

HWT headway total

ATD average trip distance

BTT basic travel time

WBT wait and basic time

WTT wait time

CPL complaints (Since Jan. '71)

SMS square miles served

ZMC miles per complaints

Procedures

Headway variables:

HWT : total headway

$$HWT = \frac{2 \times TMR \times 24 \times 60 \times TDO}{TMI}$$

HWB : surface headway

HWS : subway headway 2

$$HWS = HWD / STM$$

Where, in the above, we have:

TMR = total miles of (one-way) route

$$= SRM + SMR$$

SRM = surface miles of route

SMR = subway miles of (one-way) route

TMI = surface and train miles

$$= SFM + STM$$

HWD = hours worked drivers

SFM = surface miles

STM = subway train miles

TDO = total days of operation

$$= TD - STK$$

TD = total days

STK = strike days

Wait time:

TWT : total wait time

$$TWT = \frac{TMI}{TMR}$$

WTT : wait time

$$WTT = \frac{HWT}{2}$$

Basic travel time , speeds and vehicle mileage:

BTT : basic travel time

$$BTT = \frac{ATD}{SPD}$$

ATD : average trip distance

ATD = 5 miles times 60 min = 300 min.

(Note that in effect this variable is a constant and is not a measure of distance)

SPD : speed

$$SPD = \frac{TLM}{TLH} = \frac{SFM + SWM}{TLH}$$

SSA : surface speed average

$$SSA = SFM / SFH$$

ASS : average subway speed

$$ASS = SWM / SWH$$

FTM : subway car miles per equivalent day

$$FTM = SWM / EQD$$

FBM : surface miles per equivalent day

$$FBM = SFM / EQD$$

ZMC : miles per complaints

$$ZMC = TLM / CPL$$

Where, in the above, we have:

TLM = total vehicle miles

= SFM + SWM

SFM = surface unit miles

SWM = subway car miles

TLH = total hours

= SFH + SWH

SFH = surface hours

SWH = subway hours

CPL = complaints (Since Jan. '71)

Wait and basic time:

WBT : wait and basic time

$WBT = WTT + 0.3334 \times BTT$

I. Weather variables

RNF rainfall (in mm) for Toronto per day

SNF snowfall (in cm) per day

CSF snow accumulation; it is assumed that in April, the value is one fourth of accumulated snowfall in March.

TMP absolute value of (mean monthly temperature - 16.94 C°) where 16.94 C° = 62.5 F°, the mean or desired temperature of September

Note: monthly rainfall is given in mm by $\frac{RNF}{TD}$

J. Activities

DUC	dwelling units completed
RRT	real retail trade
RTL	department and family clothing stores sales for Toronto since 1972 and Ontario (adjusted) previously
SPS	school presence scholars (elementary & secondary schools)
SPH	school presence secondary schools
SPA	school presence adults
SPE	school presence elementary schools
SPT	school presence total
MPT	population
MTR	city population
EXA	Canadian National Exhibition attendance
STK	strike days, TTC
WPB	work presence ratio
WPR	work presence index
WPA	work presence days
FIR	subway fire

Procedures

$$WPR = WPB \times EMP$$

EMP	=	employment index for Toronto
WPB	=	WPA / WRK
WPA	=	WRK - VDW
VDW	=	vacation days workers (Montreal data)

SPE	=	ESE	x	SDA
SPH	=	SSE	x	SDA
SPS	=	STE	x	SDA
SPA	=	SAA	x	SDA
SPT	=	SPS	+	SPA

Where:

SDA: school days attendance

$$SDA = \frac{WRK - DOS}{WRK}$$

WRK: work days in month

DOS: (work) days off school
due to vacations

ESE: elementary school attendance

SSE: secondary school attendance adjusted
for 10% Sept-June drop out rate

STE: school total enrollment

$$STE = ESE + SSE$$

CCA: community college attendance

AUA: university attendance

based on University of Toronto attendance:

does not include York University or Community Colleges.

SAA: school attendance adults

$$SAA = CCA + AUA$$

CLT clothing store sales in Toronto

DEP department stores in Toronto

RRT real retail trade

$$RRT = \frac{RTL}{CPI} \times 100$$

Where:

RTL: department and family clothing

stores for Toronto since 1972 and Ontario (adjusted) previously

ZRA retail trade adjusted

$$ZRA = ZTR / SHP$$

Where:

ZTR: real retail trade

$$ZTR = VRT / CPI$$

VRT: value of retail trade: Toronto

(Source: Statistic Canada Cat 63-005)

SHP: shopping days (since '71)

MPT: Metro population

MTP: total metropolitan population
(from Metropolitan Planning Department)

MTR: city population

EXA: Canadian National Exhibition Attendance

Variable to take into account the influence of the
Exhibition on riding in August and September. Attendance
figures as supplied by the CNE are spread over August and
September based upon the number of days of CNE operation
in each month.

STK: days of TTC strikes

20 days Aug. '74
3 days Sept. '74
4 days Sept. '78

FIR: days of subway disruption of services.

K. Aggregation variables

TD: total days

$$TD = WRK + SAT + SUN + HOL$$

TDO: total days of operation

$$TDO = TD - STK$$

VDW : Vacation days workers

SAT : Saturdays

SUN : Sundays

HOL : Holidays

WKD : Weekend days

WRK : Work days

$$WKD = SAT + SUN$$

WKO: work off days

$$WKO = WKD + HOL$$

EQD: equivalent days †

$$EQD = WRK + 0.638 SAT + 0.306 SUN + 0.413 HOL$$

EDS: equivalent days corrected for strikes

$$EDS = WRK + 0.638 SAT + 0.306 SUN + 0.413 HOL - STK$$

SNH: Sundays & Holidays

$$SNH = SUN + HOL$$

SHP: shopping days (Since Jan. '71)

† TTC method of taking into account the number of Saturdays, Sundays, and Holidays in a month in recognition of the fact that riding on these days substantially differs from that of weekdays.

L. Seasonal variables and constants

JAN	January
FEB	February
MAR	March
APR	April
MAY	May
JUN	June
JUL	July
AUG	August
SEP	September
OCT	October
NOV	November
DEC	December
SFR	seasonality factor
STC	Santa Claus

C	constant equal to 100
CST	constant equal to 1
JNL	constant equal to 0

M. Advertising variables

ACR accumulated advertising reach
NCM newspaper cost thousands
NSP marketing newspaper
NSR newspaper reach

$$NSR = NSP / NCM$$

RAD marketing radio
RCM radio cost thousands
RDR radio reach

$$RDR = RAD / RCM$$

TCM television cost per thousand
TEL marketing television
TVR television reach

$$TVR = TEL / TCM$$

ZRC radio and television reach
ZRE advertising reach

$$ZRE = NSR + ZRC$$

NOTES

Note 1
Comparison with TTC file of July 1981

Compared to the TTC file of July 81, SRTT differs in the following way:

a) the following variables have been deleted:

- AFR No procedure justified this definition of adult fare.
 ADF is the more adequate variable.
- ATT The average travel time has been replaced by basic
 travel time BTT because they had the same definition.
- FFT = 4.24
- FRN No procedure justified this definition of average fare.
 FAR is the more adequate variable.
- IXF indexed fare, defined as FAR x FFT.
- JAA The constant was replaced by its numerical value, two.
- JBB The constant was replaced by its numerical value,
 one thousand four hundred and forty
- JGA Has been replaced by real gas price RGS because
 they had the same definition.
- JMR two miles of route
- JPP parta
- RWP ridership without pass was replaced by RVM, non-pass revenue passengers.
- ZZB auto vs transit, defined as PTT / IXF, made no sense.

b) the following variables have been added:

ADD	AZ2	DEC	MAR	RJF	SAA	SPE
ADP	AZR	FEB	MAY	RKF	SCD	SPT
APF	BTT	HWD	NPF	RMF	SDA	TPA
APR	CAR	HWT	NOV	RRT	SEP	VRT
APS	CHS	JUL	OCT	RSF	SN1	WBT
AUG	CLF	JUN	RCF	RVM	SN2	WTT
AZI	CSR	KMF	REF	RYF	SNH	ZRD

Note 2
Comparison with TTC file of April 1988

a) Variables included in SRTT but not in TTC file of April 1988

ADD	FAC	GAS	JNL	REF	RPT	SAA	ZRA
ASF	FAR	HWD	MTP	RGS	RPF	SDA	ZRC
CAR	FIR	JCC	NPF	RJF	RSF	SPT	
CLF	FTM	JCD	PAS	RMF	RVM	ZFR	
EDS	FWW	JCE	RCF	RPC	RYF	ZNP	

b) Variables included in TTC file of April 1988 but not in SRTT

ADC	BP1	CHT	EM3	LFM	MRD	QEP
ADT	BP2	CMF	EM4	LFO	PAA	RG2
AFR	BWP	CP2	EM5	MPA	PJP	RG3
AGF	CCB	CVN	GEO	MPB	PKS	RKK
AMF	CCC	DZN	GS2	MPC	POP	RK1
ATT	CCD	EML	GS3	MPO	PRO	RP1
AW2	CCE	EMO	GS4	MP2	PT1	RP2
BOC	CHC	EMS	KMG	MP3	PT2	RRS
BPR	CHG	EM2	LFF	MP4	PZ3	RST

ALPHABETICAL LIST OF VARIABLES

1.	ACR	accumulated advertising reach
2.	ADD	adults derived as residual
3.	ADF	adult fare
4.	ADP	adults & pass
5.	ADR	average day ridership
6.	ADU	adults
7.	APD	adults per day
8.	APF	adults & pass fare
9.	APR	April
10.	APS	adults, pass & seniors
11.	ASF	adults, seniors & pass
12.	ASS	average subway speed
13.	ATD	average trip distance
14.	AUA	attendance at university
15.	AUG	August
16.	AWW	average nominal weekly wages
17.	AZ1	adult zonal ratio during 6-zone period
18.	AZ2	adult ratio during 2-zone period
19.	AZR	adult zonal ratio during multiple counting period
20.	BTT	basic travel time
21.	C	constant (= 100)
22.	CAR	number of cars in Greater Toronto area
23.	CCA	community college attendance
24.	CHF	child fare
25.	CHI	children
26.	CHS	children and scholars
27.	CLF	children and scholars fare
28.	CLT	clothing store sales in Toronto
29.	CMB	combination tickets
30.	CPI	consumer price index
31.	CPL	complaints
32.	CSF	accumulated snow fall
33.	CST	constant (= 1)
34.	DEC	December
35.	DEP	department stores in Toronto
36.	DOS	days off school
37.	DUC	dwelling units completed
38.	EDS	equivalent days corrected for strikes
39.	EFA	exact fare adjustment
40.	EFC	exact fare dummy (impact of exact fare and possible accounting change)
41.	EMP	employment index
42.	EQD	equivalent days

43.	ESE	elementary school attendance
44.	EXA	Canadian National Exhibition attendance
45.	FAC	auto factor
46.	FAR	average fare
47.	FBM	surface miles (T) per equivalent day
48.	FEB	February
49.	FIR	days of disruption of subway service
50.	FTM	subway car miles per equivalent day
51.	FWW	weekly wages(T)
52.	GAS	gasoline prices in Toronto
53.	GFR	gas to fare ratio
54.	HOL	holidays
55.	HWB	surface headway
56.	HWD	hours worked drivers
57.	HWS	subway headway 2
58.	HWT	headway total
59.	JAN	January
60.	JCC	non-child
61.	JCD	adult derived
62.	JCE	adult adjusted
63.	JCF	zone ratio
64.	JNL	zero (= 0)
65.	JUL	July
66.	JUN	June
67.	KMF	combined fare
68.	MAR	March
69.	MAY	May
70.	MPS	metropass sales
71.	MPT	Metro population
72.	MTP	Metropolitan population
73.	MTR	city population
74.	NCM	newspaper cost thousands
75.	NOV	November
76.	NPF	non-pass fare
77.	NSP	marketing newspaper
78.	NSR	newspaper reach
79.	OCT	October
80.	PAS	dummy variable to account for impact of pass program
81.	PRD	estimate of pass ridership
82.	PRF	metropass fare
83.	PTT	price of private transportation in Toronto
84.	RAD	marketing radio
85.	RAF	real adult fare

86.	RCF	real child fare
87.	RCM	radio cost thousands
88.	RDR	radio reach
89.	REF	real elderly fare
90.	RGS	real gas price
91.	RJF	real joint adult pass-senior fare
92.	RKF	real combined fare
93.	RMF	real non pass fare
94.	RNF	rainfall
95.	RPC	riders per capita
96.	RPF	real pass fare
97.	RPT	real price of private transportation
98.	RRT	real retail trade
99.	RSF	real scholar fare
100.	RTL	department and family clothing stores sales for Toronto since 1972 and Ontario (adjusted) previously
101.	RVM	non-pass revenue passengers
102.	RVP	revenue passengers
103.	RWW	real weekly wages
104.	RYF	real youth fare
105.	SAA	school attendance adults
106.	SAT	Saturdays
107.	SCD	scholars fare extension dummy
108.	SCF	scholar fare
109.	SCH	scholars
110.	SDA	school days attendance
111.	SEF	senior fare
112.	SEN	senior citizens
113.	SEP	September
114.	SFH	surface hours
115.	SFM	surface unit miles
116.	SFR	seasonality factor
117.	SHP	shopping days
118.	SMR	subway miles of route
119.	SMS	square miles served
120.	SN1	first year of senior fare privilege (limited)
121.	SN2	following years of (extended) senior fare privilege since 1971
122.	SNF	snowfall (in cm) per day
123.	SNH	Sundays and Holidays
124.	SPA	school presence adults
125.	SPD	speed
126.	SPE	school presence elementary schools
127.	SPH	school presence secondary schools

128.	SPS	school presence scholars
129.	SPT	school presence total
130.	SRM	surface miles of route
131.	SSA	surface speed average
132.	SSE	secondary school attendance adjusted
133.	STC	Santa Claus
134.	STE	school total enrollment
135.	STK	strike days
136.	STM	subway train miles
137.	SUN	Sundays
138.	SWH	subway hours
139.	SWM	subway car miles
140.	TCM	television cost per thousand
141.	TD	total days
142.	TDO	total days of operation
143.	TEL	marketing television
144.	TLH	total hours
145.	TLM	total vehicle miles
146.	TMI	surface and train miles
147.	TMP	temperature difference
148.	TMR	total miles of route
149.	TPA	revenue passengers adjusted for presumed double counting
150.	TVR	television reach
151.	TWT	total wait time
152.	TZA	two zone riders adjusted
153.	TZF	two zone fare
154.	VDW	vacation days
155.	VHR	vehicle registrations
156.	VPC	vehicle registration per capita
157.	VRM	vehicle registration in Metro
158.	VRT	value of retail trade
159.	WBT	wait and basic time
160.	WKD	weekend days in month
161.	WKO	work off days (weekend and holiday)
162.	WPA	work presence days
163.	WPB	work presence ratio
164.	WPR	work presence index
165.	WRK	work days in month
166.	WTT	wait time
167.	ZFR	real average fare
168.	ZMC	miles per complaint
169.	ZNO	sale of zone 1 tickets

170.	ZNP	deseasonalized ridership per equivalent day
171.	ZNT	sale of zone 2 tickets
172.	ZRA	retail trade adjusted
173.	ZRB	dummy variable for 6 zone period
174.	ZRC	radio and television reach
175.	ZRD	dummy variable for 2 zone period
176.	ZRE	advertising reach
177.	ZRT	zone 2/1 ratio
178.	ZRV	revenue passenger adjusted for zone
179.	ZTR	real retail trade